

INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP2004/012279

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 C07F9/6568

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 C07F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, BEILSTEIN Data, CHEM ABS Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 03/084971 A (DEGUSSA) 16 October 2003 (2003-10-16) page 13 - page 15	1-13
Y	& DE 103 09 356 A (DEGUSSA) 20 November 2003 (2003-11-20) cited in the application	1-13
Y	WO 91/17998 A (DU PONT) 28 November 1991 (1991-11-28) Scheme 1	1-13
Y	& EP 0 528 865 A (DU PONT) 3 March 1993 (1993-03-03) cited in the application	1-13
A	WO 99/24444 A (CHIROTECH TECHNOLOGY LTD) 20 May 1999 (1999-05-20) page 2 -/-	1-13

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *G* document member of the same patent family

Date of the actual completion of the international search

3 February 2005

Date of mailing of the international search report

18/02/2005

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax (+31-70) 340-3016

Authorized officer

Elliott, A

INTERNATIONAL SEARCH REPORT

Inte Application No
PCT/EP2004/012279

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	& EP 1 028 967 A (CHIROTECH TECHNOLOGY LTD) 23 August 2000 (2000-08-23) cited in the application -----	1-13
A	PILKINGTON C J ET AL: "Expanding the Family of Phospholane-Based Ligands: 1,2-Bis(2,5-diphenylphospholano)ethane" ORGANIC LETTERS, ACS, WASHINGTON, DC, US, vol. 5, no. 8, 17 April 2003 (2003-04-17), pages 1273-1275, XP002301264 ISSN: 1523-7060 cited in the application Scheme 1 -----	1-13
Y	HOLZ J ET AL: "Synthesis of a New Chiral Bisphospholane Ligand for the Rh(I)-Catalyzed Enantioselective Hydrogenation of Isomeric beta-Acylamido Acrylates" JOURNAL OF ORGANIC CHEMISTRY, AMERICAN CHEMICAL SOCIETY. EASTON, US, vol. 68, no. 5, 12 February 2003 (2003-02-12), pages 1701-1707, XP002244188 ISSN: 0022-3263 cited in the application Scheme 2 -----	1-13
Y	BURK M J: "New chiral phospholanes; synthesis, characterization, and use in asymmetric hydrogenation reactions" TETRAHEDRON: ASYMMETRY, ELSEVIER SCIENCE PUBLISHERS, AMSTERDAM, NL, vol. 2, no. 7, 1991, pages 569-592, XP002146730 ISSN: 0957-4166 cited in the application Schemes I & III -----	1-13
Y	BLOOMFIELD P R ET AL: "Direct preparation of phenylphosphine dilithium" CHEMISTRY AND INDUSTRY, 25 April 1959 (1959-04-25), pages 541-542, XP009005175 ISSN: 0009-3068 the whole document -----	1-13
	----- -/--	

INTERNATIONAL SEARCH REPORT

Inter 1al Application No
PCT/EP2004/012279

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	<p>YAN Y-Y ET AL: "Highly Flexible Synthetic Routes to Functionalized Phospholanes from Carbohydrates"</p> <p>JOURNAL OF ORGANIC CHEMISTRY, AMERICAN CHEMICAL SOCIETY. EASTON, US, vol. 65, 11 February 2000 (2000-02-11), pages 900-906, XP002233658 ISSN: 0022-3263 Scheme 3</p>	1-13
Y	<p>NANDI M ET AL: "Synergistic effects of hemilabile coordination and counterions in homogeneous catalysis: new turnable monophosphine ligands for hydrovinylat ion reactions"</p> <p>JOURNAL OF THE AMERICAN CHEMICAL SOCIETY, vol. 121, no. 42, 27 October 1999 (1999-10-27), pages 9899-9900, XP002316158 ISSN: 0002-7863 Scheme I</p>	1-13
Y	<p>BRAUER D J ET AL: "Novel P,N ligands derived from (R)- and (S)-1-phenylethylamine with (2R,5R)-2,5-dimethylphospholanyl groups (DuPHAMIN) for asymmetric catalysis"</p> <p>EUROPEAN JOURNAL OF INORGANIC CHEMISTRY, no. 9, May 2003 (2003-05), pages 1748-1755, XP002316159 ISSN: 1434-1948 Scheme 1, conversion of compound 4 to 5</p>	1-13
Y	<p>LI W ET AL: "Synthesis of chiral hydroxyl phospholanes from D-mannitol and their use in asymmetric catalytic reactions"</p> <p>JOURNAL OF ORGANIC CHEMISTRY, vol. 65, no. 11, 2 June 2000 (2000-06-02), pages 3489-3496, XP002316160 ISSN: 0022-3263 Scheme I</p>	1-13

INTERNATIONAL SEARCH REPORT

 International Application No
 PCT/EP2004/012279

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 03084971	A	16-10-2003	BR 0308970 A CA 2481037 A1 DE 10309356 A1 WO 03084971 A1 EP 1490379 A1 HR 20040904 A2	11-01-2005 16-10-2003 20-11-2003 16-10-2003 29-12-2004 31-12-2004
DE 10309356	A	20-11-2003	DE 10309356 A1 BR 0308970 A CA 2481037 A1 WO 03084971 A1 EP 1490379 A1 HR 20040904 A2	20-11-2003 11-01-2005 16-10-2003 16-10-2003 29-12-2004 31-12-2004
WO 9117998	A	28-11-1991	US 5008457 A AT 116988 T AU 652756 B2 AU 7854691 A CA 2082166 A1 DE 69106703 D1 DE 69106703 T2 DK 528865 T3 EP 0528865 A1 ES 2067230 T3 HK 66995 A HU 68116 A2 JP 2975683 B2 JP 5507078 T NO 924317 A SG 9590537 A2 WO 9117998 A1 US 5177230 A US 5206398 A US 5322956 A	16-04-1991 15-01-1995 08-09-1994 10-12-1991 18-11-1991 23-02-1995 11-05-1995 20-03-1995 03-03-1993 16-03-1995 12-05-1995 29-05-1995 10-11-1999 14-10-1993 10-11-1992 01-09-1995 28-11-1991 05-01-1993 27-04-1993 21-06-1994
EP 0528865	A	03-03-1993	US 5008457 A AU 652756 B2 CA 2082166 A1 DE 69106703 D1 DE 69106703 T2 EP 0528865 A1 HK 66995 A HU 68116 A2 JP 2975683 B2 JP 5507078 T NO 924317 A AT 116988 T AU 7854691 A DK 528865 T3 ES 2067230 T3 SG 9590537 A2 WO 9117998 A1 US 5177230 A US 5206398 A US 5322956 A	16-04-1991 08-09-1994 18-11-1991 23-02-1995 11-05-1995 03-03-1993 12-05-1995 29-05-1995 10-11-1999 14-10-1993 10-11-1992 15-01-1995 10-12-1991 20-03-1995 16-03-1995 01-09-1995 28-11-1991 05-01-1993 27-04-1993 21-06-1994
WO 9924444	A	20-05-1999	AT 206128 T AU 1041099 A	15-10-2001 31-05-1999

INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP2004/012279

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9924444	A	CA 2307192 A1	20-05-1999
		DE 69801841 D1	31-10-2001
		DE 69801841 T2	16-05-2002
		EP 1028967 A1	23-08-2000
		ES 2162473 T3	16-12-2001
		WO 9924444 A1	20-05-1999
		JP 2001522855 T	20-11-2001
		US 6545183 B1	08-04-2003
EP 1028967	A	23-08-2000	
		AT 206128 T	15-10-2001
		AT 233780 T	15-03-2003
		AU 1041099 A	31-05-1999
		AU 1057500 A	29-05-2000
		CA 2307192 A1	20-05-1999
		CA 2347146 A1	18-05-2000
		DE 69801841 D1	31-10-2001
		DE 69801841 T2	16-05-2002
		DE 69905746 D1	10-04-2003
		DE 69905746 T2	16-12-2004
		EP 1028967 A1	23-08-2000
		EP 1127061 A1	29-08-2001
		ES 2190266 T3	16-07-2003
		WO 0027855 A1	18-05-2000
		JP 2001522855 T	20-11-2001
		JP 2002529472 T	10-09-2002
		US 6172249 B1	09-01-2001
		US 6545183 B1	08-04-2003
		ES 2162473 T3	16-12-2001
		WO 9924444 A1	20-05-1999